

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Previously Presented): A pH-sensitive polymer comprising:

25 to 65% by weight of methacrylic acid units, and

80 to 35% by weight of units of C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid;

wherein the pH-sensitive polymer has a molecular weight in the range from 1,000 to 50,000 g/mol,

does not contain transition metal complexes, and

brings about at least 60% haemolysis at pH 5.5, and less than 5% haemolysis at pH 7.4, at a concentration of 150 µg/ml in a cytotoxicity test with human red blood cells.

Claim 2 (Previously Presented): The pH-sensitive polymer according to Claim 1,

wherein the pH-sensitive polymer comprises

40 to 60% by weight of methacrylic acid units and

60 to 40% by weight of ethyl acrylate units.

Claim 3 (Previously Presented): The pH-sensitive polymer according to Claim 1,

wherein the pH-sensitive polymer comprises

25 to 40% by weight of methacrylic acid units,

25 to 45% by weight of methyl acrylate units, and

25 to 45% by weight of ethyl acrylate units.

Claim 4 (Previously Presented): The pH-sensitive polymer according to Claim 1,

wherein the pH-sensitive polymer comprises

40 to 60% by weight of methacrylic acid units,

60 to 30% by weight of ethyl acrylate units, and  
2 to 20% by weight of butyl methacrylate units.

Claim 5 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein the pH-sensitive polymer comprises  
40 to 60% by weight of methacrylic acid units,  
60 to 40% by weight of ethyl acrylate units, and  
0.1 to 2% by weight of units of a C<sub>8</sub>- to C<sub>16</sub>-alkyl ester of acrylate or methacrylate acid.

Claim 6 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein at a concentration of 0.03125 mg/ml the pH-sensitive polymer brings about in the MTT test with the mouse macrophage-like cell type J774A.1 (ATCC TIB-67) a percentage-value of cell survival of at least 25%, based on a 100% survival rate in the control experiment.

Claim 7 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein at a concentration of 0.03125 mg/ml the pH-sensitive polymer brings about in the LDH test with the mouse macrophage-like cell type J774A.1 (ATCC TIB-67) a LDH release-value of at not more than 40%, based on 100% cytolysis (toxicity) in the control experiment.

Claim 8 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein the pH-sensitive polymer is in the form of a conjugate or a complex with a pharmaceutically effective natural or synthetic biomolecule or an active pharmaceutical ingredient.

Claim 9 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein the pH-sensitive polymer is coupled to a conformation-altering agent.

Claim 10 (Previously Presented): The pH-sensitive polymer according to Claim 1, wherein the pH-sensitive polymer is a constituent of a complex crosslinked via nucleic acids after chemical modification.

Claim 11 (Previously Presented): A process for preparing a pH-sensitive polymer according to Claim 1, the process comprising:

free-radically polymerizing 25 to 65% by weight of methacrylic acid monomer units with 75 to 35% by weight of monomer units of C<sub>1</sub>- to C<sub>18</sub>-alkyl esters of (meth)acrylic acid in the presence of polymerization initiators and molecular weight regulators by block polymerization, bead polymerization, emulsion polymerization, group transfer polymerization (GTP), or atom transfer radical polymerization (ATRP) to form the polymer,

discharging the polymer,

dissolving the polymer,

purifying the polymer and

drying the polymer.

Claim 12 (Previously Presented): The process according to Claim 11, wherein the molecular weight regulator is dodecyl mercaptan and/or 2-ethylhexyl thioglycolate.

Claim 13 (Withdrawn): A medicinal substance comprising the pH-sensitive polymer according to Claim 1 as

a carrier for biomolecules or active pharmaceutical ingredients,  
a conjugate for biomolecules or active pharmaceutical ingredients,  
a complex for biomolecules or active pharmaceutical ingredients,  
or as a constituent of microparticles, nanoparticles, liposomes, emulsions and/or lipid vesicles.

Claim 14 (Withdrawn): The medicinal substance according to Claim 13 wherein said biomolecules are selected from the group consisting of lipids, proteins, peptides, nucleic acids and mixtures thereof.

Claim 15 (Withdrawn): The medicinal substance according to Claim 13, wherein the active pharmaceutical ingredients are selected from the group consisting of analgesics, antiallergics, antirheumatics, antibiotics, antiinfectives, antiparkinson agents, antipsoriatics, antitumour agents, dermatologicals, gout remedies, immunoregulators, gastrointestinal agents, neurotropic agents, ophthalmologicals, cytostatics and mixtures thereof.

Claim 16 (Withdrawn): The medicinal substance according to Claim 13, wherein said medicinal substance is in a dermal, transdermal, parenteral, nasal, pulmonary, vaginal or oral dosage form.

Claim 17 (Withdrawn): The medicinal substance according to Claim 16 wherein said medicinal substance is effective in treating a disease selected from the group consisting of cancer, infections, cardiovascular disorders, arthritis, neurodegenerative disorders, genetically related enzyme-deficiency disorders, hepatitis B and C, mucoviscidosis, hypercholesterolemia,

Down's syndrome, muscular dystrophy, autoimmune diseases, shingles and herpes, psoriasis, CMV retinitis, Crohn's disease, ulcerative colitis, diabetes and mixtures thereof.

Claim 18 (Withdrawn): The medicinal substance according to Claim 13 wherein said biomolecules are selected from the group consisting of oligonucleotides, nucleosides, antisense DNA, antisense RNA, nucleotides, toxins, immunotoxins, antibodies, fragments of antibodies and mixtures thereof.

Claim 19 (Previously Presented): The pH-sensitive polymer of Claim 1 which is produced by free radical polymerization of monomers in the presence of a polymerization initiator and molecular weight regulator by block, bead or emulsion polymerization.

Claim 20 (Previously Presented): The pH-sensitive polymer of Claim 1 which is not produced by catalytic chain polymerization (CCT), group transfer polymerization (GTP) or by atom transfer radical polymerization (ATRP).

Claim 21 (New): A pH-sensitive polymer comprising:  
25 to 65% by weight of units of methacrylic acid,  
80 to 35% by weight of units of C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid,  
wherein the pH-sensitive polymer has a molecular weight in the range from 1,000 to 50,000 g/mol,  
does not contain transition metal complexes, and  
brings about at least 60% haemolysis at pH 5.5, and less than 5% haemolysis at pH 7.4, at a concentration of 150 µg/ml in a cytotoxicity test with human red blood cells;

wherein said pH-sensitive polymer is produced by polymerizing methacrylic acid and C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid in the presence of a molecular weight regulator which incorporates on a terminal of said polymer.

Claim 22 (New): The pH-sensitive polymer of claim 21, which is produced by polymerizing a monomer mixture of methacrylic acid and C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid in the presence of 5 to 15% of n-dodecyl mercaptan by weight based on the weight of the monomer mixture.

Claim 23 (New): The pH-sensitive polymer of claim 21, which is produced by polymerizing a monomer mixture of methacrylic acid and C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid in the presence of 5 to 10% of 2-ethylhexyl thioglycolate by weight based on the weight of the monomer mixture.

Claim 24 (New): A pH-sensitive polymer comprising:  
30 to 50% by weight of methacrylic acid units, and  
35 to 70% by weight of units of C<sub>1</sub>-C<sub>18</sub>-alkyl esters of (meth)acrylic acid, provided that the content of ethylacrylate ranges from 35-50%;

wherein the pH-sensitive polymer has a molecular weight in the range from 1,000 to 50,000 g/mol,

does not contain transition metal complexes, and

brings about at least 60% haemolysis at pH 5.5, and less than 5% haemolysis at pH 7.4, at a concentration of 150 µg/ml in a cytotoxicity test with human red blood cells.

Claim 25 (New): The pH-sensitive polymer of claim 24, which contains 50 wt% methacrylic acid units and 50 wt% ethylacrylate units.

Claim 26 (New): The pH-sensitive polymer of claim 24, which contains 30 wt% methacrylic acid units, 35 wt% ethylacrylate units, and 35 wt% methylacrylate units.